CLAIMS

What is claimed is:

1. A method of managing network devices by specifying device components using a parsable string that conforms to a specified grammar, the method comprising the computer steps of:

creating and storing one or more entity location specifier values each comprising one or more location elements;

wherein the one or more entity location specifier values are specified as parsable strings;

wherein the parsable strings conform to the specified grammar;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of entities within one or more network devices;

receiving a retrieval request for a particular entity location specifier value; and

transmitting the particular entity location specifier value to the application.

2. A method as recited in Claim 1 wherein the parsable strings are stored in MIB objects and wherein the one or more entity location specifier values are specified as the parsable strings in the MIB objects.

3. A method as recited in Claim 1 wherein a particular location element of the one or more location elements is selected from among the group consisting of chassis=value, shelf=value, slot=value, subSlot=value, port=value, subPort=value, channel=value, subChannel=value, and processor=value.

4. A method as recited in Claim 1 wherein the step of transmitting further comprises the step of transmitting the particular entity location specifier value to the application in a single response.

5. A method as recited in Claim 1 wherein the one or more entity location specifier values contain location elements that identify both logical entities and physical entities .

6. A method as recited in Claim 1 wherein the one or more entity location specifier values are stored in MIB-call-records on specifier values in said MIB.

7. A method as recited in Claim 1 wherein the superset of location elements is extensible.

8. A method as recited in Claim 1 wherein the specified grammar is compatible with Command Line Interface.

9. A method as recited in Claim 1 wherein the specified grammar is defined according to Augmented Backus-Naur Form (ABNF).

10. A method as recited in Claim 9 wherein the grammar is defined as:

location-specifier =elem * (',' elem)
elem = loctype '=' number
number=%x00-FFFFFFFF / %d0-4294967295
loctype = 1*32VCHAR.

11. A method as recited in Claim 10 wherein the "loctype" defined within the grammar is an enumerated value that provides location information of a particular physical or logical entity selected from the set consisting of chassis, shelf, slot, port, sub-port, channel, and sub-channel.

12. A method as recited in Claim 1 wherein the parsable strings conform to a first textual convention and a second textual convention.

13. A method of managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, the method comprising the computer-implemented steps of:
issuing a retrieval request for a particular entity location specifier value to an agent on a network device;

wherein the particular entity location specifier value is specified as the parsable string;

wherein the particular entity location specifier value comprises one or more location elements;

wherein the parsable string conforms to the specified grammar;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of all entities within one or more network devices;

receiving the particular entity location specifier value; and

processing the particular entity location specifier value to determine a location of an entity.

14. A method as recited in Claim 13 wherein the parsable string is stored in a MIB object.

15. A method as recited in Claim 13 wherein a particular location element of the one or more location elements is selected from among the group consisting of chassis=value, shelf=value, slot=value, subSlot=value, port=value, subPort=value, channel=value, and subChannel=value.

16. A method as recited in Claim 13, wherein the step of receiving further comprises the step of receiving the particular entity location specifier value in a single response.

17. A method as recited in Claim 13 wherein the particular entity location specifier value comprising the one or more location elements that identify both logical entities and physical entities.

18. A method as recited in Claim 13 wherein the superset of location elements is extensible.

19. A method as recited in Claim 13 wherein the specified grammar is compatible with CLI.

20. A method as recited in Claim 13 wherein the specified grammar is defined according to Augmented Backus-Naur Form (ABNF).

21. A method as recited in Claim 20 wherein the grammar is defined as:

location-specifier =elem * (',' elem)
elem = loctype '=' number
number=%x00-FFFFFFFF / %d0-4294967295
loctype = 1*32VCHAR.

22. A method as recited in Claim 21 wherein the loctype defined within the grammar is an enumerated value that provides location information of a particular physical or logical entity selected from the set consisting of chassis, shelf, slot, port, sub-port, channel, and sub-channel.

23. A method as recited in Claim 13 wherein the parsable string conforms to a first textual convention and a second textual convention.

24. A method as recited in Claim 13 wherein the step of processing further comprises the step of parsing the parsable string to determine the one or more location elements.

25. A computer-readable medium carrying a data structure used in managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, comprising:
a location specifier value comprising one or more location elements;
wherein the location specifier value is specified as the parsable string that conforms to the specified grammar;
wherein the location specifier value is in a MIB object;
wherein the one or more location elements are selected from a superset of location elements that specify locations of all entities within one or more network devices; and

wherein the parsable string can be retrieved from the MIB object with a retrieval request.

26. A computer-readable medium carrying one or more sequences of instructions for managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

creating and storing one or more entity location specifier values each comprising one or more location elements;

wherein the one or more entity location specifier values are specified as parsable strings;

wherein the parsable strings conform to the specified grammar;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of all entities within one or more devices;

receiving a retrieval request for a particular entity location specifier value; and

transmitting the particular entity location specifier value to the application.

27. A computer-readable medium carrying one or more sequences of instructions for managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, when executed by one or more processors, cause the one or more processors to carry out the steps of:

issuing a retrieval request for a particular entity location specifier value to an agent on a network device;

wherein the particular entity location specifier value is specified as the parsable string;

wherein the particular entity location specifier value comprises one or more location elements;

wherein the parsable string conforms to the specified grammar;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of all entities within one or more network devices;

receiving the particular entity location specifier value; and

processing the particular entity location specifier value to determine a location of an entity.

28. An apparatus for managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, comprising:

means for creating and storing one or more entity location specifier values each comprising one or more location elements;

wherein the one or more entity location specifier values are specified as parsable strings;

wherein the parsable strings conform to the specified grammar;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of all entities within one or more network devices;

means for receiving from an application a retrieval request for a particular entity location specifier value; and

means for transmitting the particular entity location specifier value to the application.

29. An apparatus for managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, comprising:

a network interface that is coupled to a data network for receiving one or more packet flows therefrom;

a processor;

one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:

creating and storing one or more entity location specifier values each comprising one or more location elements;

wherein the one or more entity location specifier values are specified as parsable strings;

wherein the parsable strings conform to the specified grammar;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of all entities within one or more network devices;

receiving from an application a retrieval request for a particular entity location specifier value; and

transmitting the particular entity location specifier value to the application.

30. An apparatus for managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, comprising:

means for issuing a retrieval request for a particular entity location specifier value to an agent on a network device;

wherein the particular entity location specifier value is specified as the parsable string;

wherein the particular entity location specifier value comprises one or more location elements;

wherein the parsable string conforms to the specified grammar;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of all entities within one or more network devices;

means for receiving the particular entity location specifier value; and

means for processing the particular entity location specifier value to determine a location of an entity.

31. An apparatus for managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, comprising:

a network interface that is coupled to a data network for receiving one or more packet flows therefrom;

a processor;

one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:

issuing a retrieval request for a particular entity location specifier value to an agent on a network device;

wherein the particular entity location specifier value is specified as the parsable string;

wherein the particular entity location specifier value comprises one or more location elements;

wherein the parsable string conforms to the specified grammar;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of all entities within one or more network devices;

receiving the particular entity location specifier value; and

processing the particular entity location specifier value to determine a location of an entity.

32. A method of managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, the method comprising the computer steps of:

creating and storing one or more entity location specifier values each comprising one or more location elements;

wherein the one or more location elements are for logical entities and physical entities;

wherein the one or more entity location specifier values are specified as parsable strings in MIB objects;

wherein the parsable strings conform to ABNF;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of all entities within one or more network devices;

receiving from an application a single retrieval request for a particular entity location specifier value; and

transmitting the particular entity location specifier value to the application in a single response.

33. A method of managing network devices by specifying device components using a parsable string that conforms to a specified grammar to provide platform independent management, the method comprising the computer-implemented steps of:

issuing a single retrieval request for a particular entity location specifier value to an agent on a network device;

wherein the particular entity location specifier value is specified as the parsable string;

wherein the particular entity location specifier value comprises one or more location elements;

wherein the one or more location elements are for logical entities and physical entities;

wherein the parsable string conforms to ABNF;

wherein each of the one or more location elements is selected from a superset of location elements that specify locations of all entities within one or more network devices;

receiving the particular entity location specifier value in a single response; and

processing the particular entity location specifier value to determine a location of an entity.